



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

LM61/0724

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APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/729,625	10/10/96	012	TRAN, C	2733 07/24/98
First Named Applicant	GARDNER, WILLIAM A.			

TITLE OF INVENTION GMSK SIGNAL PROCESSORS FOR IMPROVED COMMUNICATIONS CAPACITY AND QUALITY

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
2	GAR1756.03A	375-336.000	G97 UTILITY	YES	\$660.00	10/26/98

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

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Washington, DC 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/729,625 10/10/96 GARDNER

W GAR1756.03A

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EXAMINER

TRAN, C

ART UNIT

PAPER NUMBER

2733
DATE MAILED:

7
07/24/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Notice of Allowability

Application No.
08/729,625

Applicant(s)
Gardner et al.

Examiner
CONGVAN TRAN

Group Art Unit
2733



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to application filed on 10/10 96.

☒ The allowed claim(s) is/are 1-12.

☒ The drawings filed on Oct 10, 1996 are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____.

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 and 6

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

JASON CHAN
PRIMARY EXAMINER

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DETAILED ACTION

Allowable Subject Matter

1. Claims 1-12 are allowed.
2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are pertinent to the claimed subject matter of GMSK signal processor for improved communications capacity and quality.
 - Gardner et al. (5,299,148) featuring a self-coherence restoring signal extraction and estimation of signal direction of arrival.
 - Gardner et al. (5,299,148) featuring a self-coherence restoring signal extraction apparatus and method.
 - Gardner et al. (5,260,968) featuring a Method and apparatus for multiplexing communications signals through blind adaptive spatial filtering.
 - Jasper et al. (5,487,091) featuring a method for determining signal usability in a diversity receiver.
 - Roy,III et al. (5,515,378) featuring a spatial division multiple access wireless communication systems.
 - Enge et al. (5,465,413) featuring a adaptive noise cancellation.
3. The following is an examiner's statement of reasons for allowance:

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Although, the references cited above are pertinent to the claimed subject matter of a GMSK signal processor for improved communications capacity and quality, none of them teaches or suggests an apparatus for extracting a signal from a plurality of spectrally and temporally overlapping input signals containing digital data having a bit rate, said input signals having carrier frequencies, said input signals having conjugate cycle frequency equal to twice their carrier frequencies plus and minus one-half of their data bit rate, said input signals exhibiting conjugate spectral redundancy for spectral components having frequencies separated by said cycle frequencies, said input signals exhibiting temporal redundancy said apparatus comprising: time shifting means for producing a time-shifted output signal wherein said signal of interest is time-shifted; frequency-shifting means for producing a frequency-shifted output signal wherein said signal of interest is frequency-shifted by amount determined by its cycle frequencies; and linear combining means for weighting and summing said output signals to produce an estimate of said signal of interest.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Congvan Tran whose telephone number is (703) 305-4024. The examiner can normally be reached on Monday-Thursday from 6:30 am to 5:00 pm.

Serial Number: 08/729625

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703) 305-4729. The fax phone number for this Group is (703) 308-9051.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

June 15, 1998

Conguan Tran


JASON CHAN
PRIMARY EXAMINER

